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14. ABSTRACT

We have collected MEG data from 8 patients with TBI to this date.

15. SUBJECT TERMS
magnetoencephalography, mild closed head injury, PTSD

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1. Introduction

In this study we use Magnetoencephalography (MEG) to detect and characterize focal abnormalities in neurophysiological function in patients with mTBI and PTSD for the purpose of distinguishing between the two. MEG is a completely non-invasive imaging modality which is able to provide information regarding focal abnormalities in the brain. MEG has been shown to be sensitive to cognitive complaints in patients with mTBI. In addition neurophysiological abnormalities differentiate patients with mTBI and PTSD in some studies. We are also exploring the relationship between diffusion tensor imaging (DTI) and MEG findings. While MEG provides data regarding focal abnormalities in neural response in the cortex, DTI reveals the status of white matter tracts that form the intracortical connections. Thus, MEG, in combination with DTI, may lead to identification of more distinct, replicable patterns of brain abnormalities in subjects with PTSD and mTBI that may lead to better differentiation between these groups of patients, as well as from patients with a combination of both disorders.

2. Body

Statement of Work: We are attempting to detect and characterize focal abnormalities in neurophysiological function in patients with mTBI and PTSD using magnetoencephalography (MEG) for the purpose of distinguishing between the two. We are also in the process of exploring the relationship between diffusion tensor imaging (DTI) and MEG findings. 320 patients that have been diagnosed as having mTBI, PTSD, or orthopedic injuries (OI) will undergo 10 minutes of resting magnetoencephalography (MEG), structural magnetic resonance imaging (MRI) imaging including diffusion tensor imaging. Analysis of the data will be performed using ANOVA.

Towards accomplish these goals we have begun to collect data from patients. The overall screening/enrollment activities are summarized in Dr. Harvey Levin's report. Here at the Meg lab we have collected data from two patients thus far but expect to have collected data from nine more patients by the end of the summer.

3. Key Research Accomplishments

- Participated in collaborative activities with the other investigators on this and the other clinical projects to develop the Integrated Clinical Protocol.
- Participated in regular meetings of the Clinical Working Group.
- Collected MEG data on 5 patients with Traumatic Brain Injury thus far.

4. Reportable Outcomes

We are beginning our analyses of the data at this time.

5. Conclusion

We have collected data on 5 patients with traumatic brain injury at this time and are beginning our analyses of the data. Please see Dr. Levin's report for a full breakdown of recruitment data.

6. References

N/A

7. Appendices

N/A

List of Individuals Receiving Pay from the Research Effort

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